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OF

OPHTHALMOLOGY

MAY, 1923

COMMUNICATIONS

TWO CASES OF TUMOUR OF THE OPTIC NERVE*

BY

HUMPHREY NEAME

LONDON

TUMOURS of the optic nerve are of such rarity that it seemed that the two cases to be described might be reported in detail.

Case I

Rowland, O., aged 14, was seen by the writer at the Central London Ophthalmic Hospital, in February, 1921.

History: The mother stated that she had noticed during 1915 that the left eye looked larger than the right. Gradually this feature became more noticeable. The boy had always enjoyed good health. There was no pain. There was no history of aural or nasal discharge. Examination on 9/2/21 was as follows:—V.R.=6/6, J1 at 16 inches. Manifest hypermetropia 0.5 D. V.L.=shadows only. The pupils were equal and active; tension normal, R. and L. There was proptosis of the left eye to the extent of 18 mm. as measured from the mandibular joint to the plane of the anterior corneal surface. (R.=82 mm., L.=100 mm.)

Movements of the eyes were good in all directions. The right fundus, disc and macula were normal. The left disc was pale and of a woolly appearance, with no distinguishable physiological cup, and no appreciable swelling. Large choroidal vessels were

* Read at the meeting of the Section of Ophthalmology, Royal Society of Medicine, March 9, 1923.

visible in both eyes, but more apparent in the left. In the left there were also several very large choroidal vessels which passed to the margin of the disc and there disappeared.

Mr. Norman Patterson examined the boy and reported that there was nothing in the nose or its surroundings to account for the exophthalmos. X-ray examination at the London Hospital revealed no abnormal shadow in the orbits.

As the proptosis continued to increase, it was decided in October, 1921, that an operation should be performed.

Operation: October, 1921. The external canthus was divided horizontally, the incision being carried to the orbital margin. The conjunctiva was turned forwards and the external rectus

CASE I. FIG. 1.
Stereo-photograph of patient, Case No. 1, eight months before operation.

muscle was exposed. This muscle was divided between two sutures and the eyeball drawn forwards. The orbit was found to be occupied by a mass behind the eyeball. Dissection revealed that a small portion of the optic nerve was apparently uninvolved immediately behind the eyeball. A ligature was passed around this and used as a retractor. The orbit was found to be completely filled by a mass of elastic consistency. It was not found possible to distinguish the superior and inferior recti muscles. The mass was separated from the walls of the orbit by blunt dissection. Curved scissors passed behind the mass were used to cut through its posterior limits at the optic foramen. The mass was then drawn forwards and removed from the orbit, and the optic nerve divided close to the eyeball. Some grumous material escaped from the mass when division was made at the back of the orbit.

The external rectus muscle was then sutured and the wound drained and closed. The edges of the lids were pared and the lids sutured together.

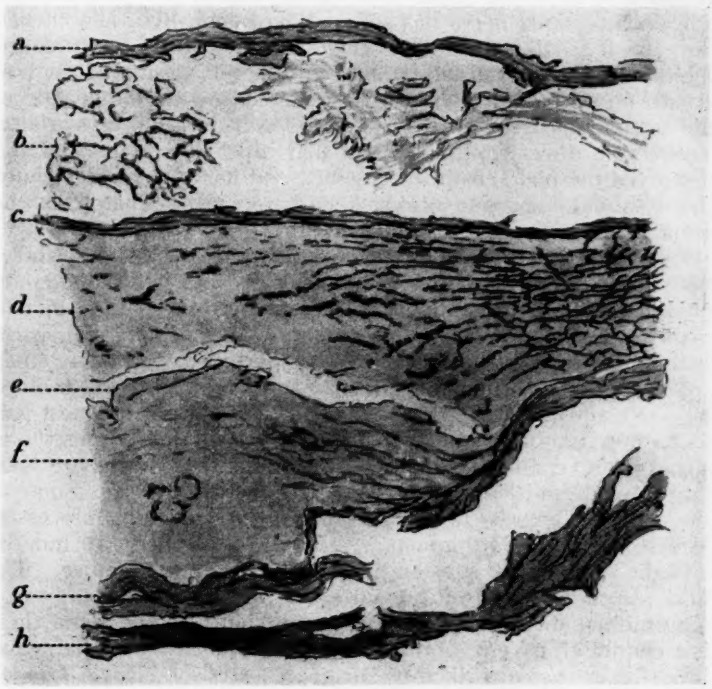
Within twenty-four hours there was very considerable proptosis and swelling of the eyelids. Only a very moderate amount of blood drained along the tube, which was therefore removed. During the next few days the proptosis remained in about the same condition, and the tension upon the sutures in the eyelids was so great as to cause them to cut through the tissues. The cornea was thereby to some extent exposed and quickly developed some opacity in its lower part. The surface stained strongly with fluorescein. By the passage of fresh sutures the lids were made to cover the eye to some extent for a few days longer. Gradually the proptosis lessened, but the corneal condition remained such as to cause considerable anxiety. In the course of about a fortnight some diminution of the extent of staining of the cornea was noticed. Very gradually the ulcerated surface healed, leaving a moderate degree of opacity in the lower half of the cornea. There was complete loss of sensation in the cornea, and this has persisted to the present time. As was to be expected, owing to the size of the orbital mass and the somewhat blind division of the orbital contents, the action of the levator palpebrae was lost. There has been no sign of return of function in this muscle, but a small degree of elevation of the upper lid is now possible through the action of the frontalis muscle. The eyeball took up a position of abduction and was devoid of power of movement. The position of the eyeball remains the same at the present time. The cornea now has slight opacity in its lower third, which is not sufficient to obstruct a fair view of the fundus. There has been no return of sensation in the cornea. But the fact that the upper lid remains paralysed has presumably prevented any fresh development of corneal ulceration. The iris shows marked atrophy, so much so that in places a faint red reflex can be seen through it when the fundus is examined. The optic disc has gradually passed to the stage of optic atrophy, and now is almost dead white in colour with some white areas of choroidal atrophy around. The retinal vessels, from the time at which they were first visible after the operation, have maintained their colour. Some abnormal vessels are present which disappear at the disc margin. There is a slight degree of retinal pigmentation in some parts of the fundus which has developed gradually since the operation.

Pathological Examination: The writer acknowledges his indebtedness to Mr. Williamson-Noble for sections of the specimen. The specimen consisted in a short piece of optic nerve, the anterior extremity of which widened out into a collapsed sac

with walls of from $\frac{1}{4}$ to $\frac{1}{3}$ of an inch in thickness. The sac showed a small opening at its posterior end through which the contents had escaped. (At the time of the operation some thick fluid escaped from this opening which was made with the scissors in separating the mass from the posterior limit of the orbit.) A small portion of optic nerve was removed and embedded separately after fixation in formalin. The remainder of the optic nerve with a portion of the adjoining wall of the sac was fixed in Müller's fluid and embedded in paraffin. Transverse sections of a small portion of the optic nerve were made and stained with Weigert's iron haematoxylin and van Gieson's stain (picric acid fuchsin). Sections of the other piece of tissue, cut longitudinally, were stained with: (1) Ehrlich's haematoxylin and eosin, (2) Weigert's iron haematoxylin, and van Gieson's stain, (3) thionin, (4) polychrome methylene blue.

Microscopic: The optic nerve in cross section at its anterior end shows a normal structure. Sections stained by the 3rd and 4th methods failed to reveal any evidence of the presence of mucin. The longitudinal sections through the optic nerve and part of the sac wall show the following condition (See Fig. 2):—Through the extent of the sections of this portion the dural sheath appears to be free from involvement. In some sections it is interrupted, probably by the process of cutting, but in others it is continuous. At the anterior extremity of this portion the dural sheath is separated from the pial sheath for, on the average, a distance about equal to half the normal diameter of the optic nerve. Here and there traces of arachnoid sheath and its covering endothelium can be seen close to or in contact with the inner surface of the dural sheath. van Gieson's stain shows well the condition of the nerve sheaths. In the anterior half of the sections there is a great increase in the collagen fibrous tissue, internal to the remnants of the endothelial cells of the arachnoid sheath. This appears to have connection mainly with the pial sheath. On one side of the optic nerve the pial sheath can be traced very definitely throughout the length of the section. On this same side the posterior part of the space between pia and dura is occupied by new formation similar to that which involves the nerve, which will be described later, but with this difference—that strands of collagen fibre taking tortuous paths through it break it up into irregular masses. At the other side of the section the pial sheath can be traced from the anterior end to about half the extent of the section, and then is split up into numerous strands by tissue of new formation similar to that to which reference has been made. The optic nerve, sectioned slightly obliquely and not completely in the longitudinal direction, at its anterior extremity in the sections is of normal appearance.

It shows near its anterior end a constriction with interruption of many of the nerve bundles, presumably the site of the ligature



CASE I. FIG. 2.

From a Coloured Drawing of section of part of the tumour and optic nerve of Case No. 1. Low power. Section stained with Weigert's iron haematoxylin and van Gieson's picric acid fuchsin stain. Fibrous connective tissue (collagen) coloured red in original Coloured Drawing. *a*. Dural sheath of optic nerve. *b*. Invasion of subdural space by gliomatous tissue, towards posterior end of section. Proliferation of pial sheath towards anterior end of section. *c*. Pial sheath. *d*. Zone of optic nerve whose interseptal spaces have been widened by new gliomatous tissue. The latter has undergone some form of degeneration. *e*. The cleft indicates the position of the fluid contents of the tumour, the result of degeneration. *f*. Part of pial sheath invaded by gliomatous tissue. *g*. Pial sheath. *h*. Dural sheath. *k*. Anterior end (towards eyeball) of optic nerve, showing part, of normal structure.

which was passed around this part of the nerve during the operation. The normal appearance of the nerve is continued backwards for about half its extent, and from there the interseptal spaces and the nerve bundles within them widen out gradually. Finally, the pattern of longitudinally arranged septal bundles of

collagen fibrous tissue is entirely lost, and the remaining widened mass of tissue, somewhat fragmented, is of irregular pattern and of grey or yellow-grey colour as stained by van Gieson's method. It appears, therefore, from examination with a low power objective that the optic nerve has suffered expansion by a new formation which has destroyed the normal pattern of the nerve, widened the interseptal spaces, and invaded and largely destroyed the pial sheath on one side. New formation noted on the other side of the sections as lying between the pial and dural sheaths is presumably in direct continuity with that which has permeated and destroyed the pial sheath in one part, and has therefore extended in the subdural space so as to surround more or less completely the optic nerve.

Examination with a Zeiss objective A and No. 2 eyepiece shows the mass of new formation to be composed of fairly abundantly nucleated tissue with innumerable fibrils forming a kind of felt-work structure. Where the tissue of the septal interspaces becomes merged in that of felt-work pattern there are many small spaces, as from oedema. Under examination with a $\frac{1}{6}$th Zeiss objective and No. 2 eyepiece, the nuclei are seen for the most part to be oval or round, and of about the size of red corpuscles or slightly larger, and darkly stained. Among these nuclei are some larger, oval, and less darkly stained. The cytoplasm of some of the cells can be seen to extend into several branching processes. Where the tissue is fragmentary the nuclei are fewer in number and the intervening substance is broken off into granules. The fibrils in the widened interseptal spaces are arranged mainly in a longitudinal direction, but in close proximity to the septa there is a definite transverse fibrillation, but not quite so well marked as in a similar case described by Mr. A. C. Hudson (*Royal London Ophthalmic Hospital Reports*, Vol. XVIII, p. 317, illustrated).

A consideration of the above observations leads one to the definite conclusion that this case falls into the group named by Hudson gliomatosis of the optic nerve.

Case II*

Matilda C. (Royal London Ophthalmic Hospital, Path. No. 423), aged 79, seen 4/11/21. This patient was admitted to Moorfields Hospital under the care of Mr. E. Treacher Collins, to whom the writer is indebted for permission to use the notes of the case. The clinical notes were made by Mr. Basil Graves.

History: There was great uncertainty as to the reliability of the patient's statements, owing to the senile mental condition. It

* On March 20, 1923, that is to say, more than 16 months after the operation of partial exenteration of orbit, news was received of this patient. A district nurse visited her and stated that the socket was quite healthy. The patient, however, was so infirm, owing to her great age, that it was impossible for her to visit the hospital.

was stated that the right eye had been blind for many years, but that it had been prominent only for three weeks. There had been marked pain recently. Clinical examination on November 4, 1921, revealed moderate proptosis of the right eye, in a forward direction. There was some chemosis of the conjunctiva. Slight limitation of movements. The cornea was clear and bright. The anterior chamber was rather shallow; the iris was normal. There was a mature cataract, which was possibly the cause of the long-standing failure of vision in this eye. V. = no perception of light. Tension, normal or slightly raised. At the time of operation excision of the eyeball was started, but a partial exenteration of the orbit was performed, as a mass was felt behind the eyeball.

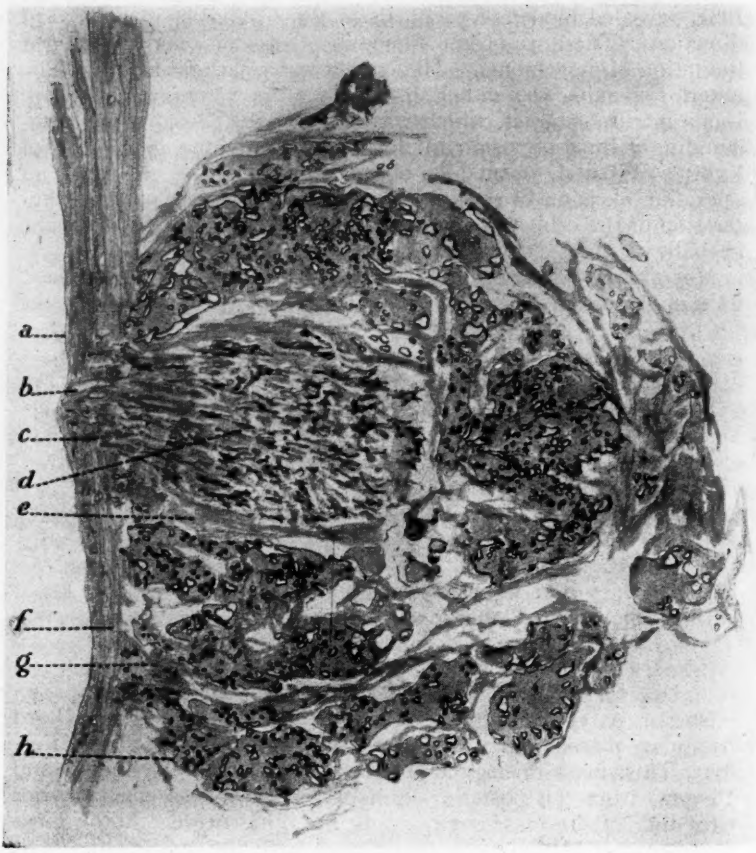
Macroscopic: The eyeball measured 24 mm. antero-posteriorly, 24 mm. laterally, 23 mm. vertically. There was attached to the

CASE II. FIG. 3.

Drawing of divided eyeball and tumour of nerve.
The plane of section does not pass through the centre of the optic disc.
The growth is seen to involve the sheaths and not the nerve itself.

posterior part around and obscuring the optic nerve, a hard irregular mass, partly damaged during operation (See Fig. 3). This mass measured 14 by 14 mm. in thickness, and 16 mm. from the posterior limit of the eyeball to the posterior extremity of the mass surrounding the optic nerve. Many loose fragments of orbital fatty tissue were with the specimen. The tissues were fixed in 10 per cent. formaldehyde after immersion in Zenker's fluid for one hour. After division of the specimen in the horizontal plane the larger part was placed in Müller's fluid for $3\frac{1}{2}$ months. The cut surface of the growth at the back of the eyeball showed a central zone, grey-yellow in colour, which appeared to be continuous with the nerve fibre layer of the retina. There was a dark area of tissue surrounding this, of semi-transparent gelatinous appearance. Outside of this was the much-thickened sheath (? dural). The cornea was of normal appearance. The anterior chamber was shallow; the iris and ciliary

body normal. The lens showed extensive subcapsular and cortical changes. The retina and choroid were in situ. There was a pale



CASE II. FIG. 4.

From a Coloured Drawing of section of optic nerve and new growth, with posterior part of retina and sclerotic. Low power. The section passes somewhat obliquely, so that the optic nerve does not pass through more than a small part of the section. *a*. Degenerate retina. *b*. Central vessels. *c*. Lamina cribrosa. *d*. Degenerate optic nerve, with increase of fibrous tissue. *e*. Pial sheath, intact. *f*. Sclerotic. *g*. Dural sheath, split up into bundles by the growth. *h*. Extra-dural extension of growth. In the section the growth appears to extend posterior to the nerve, in a broad zone. This mass is seen in this position because of the obliquity of the section, and is in reality a continuation of the growth which lies between the pial and dural sheaths.

area of atrophy, with serpiginous outline, around the disc, equal to about eight disc diameters at its broadest part. In the extreme

anterior part near the ora serrata there were some irregular patches of choroidal atrophy with loss of pigment, and on the inner surface near the equator were some scattered streaks of retinal pigmentation. The disc edges appeared to be rather prominent particularly above.

Part of the anterior half of the globe was embedded in celloidin, and part of the posterior half in photoxylin and paraffin (Jordan's method).

Sections were stained with: (1) Ehrlich's haematoxylin and eosin; (2) Weigert's iron haematoxylin and van Gieson's stain; (3) Weigert-Pal's medullary sheath stain.

Microscopic: Sections of the globe show conjunctival vascularization and slight cell infiltration. The cornea is of normal structure; the anterior chamber shallow; and the angle particularly narrow. The iris and ciliary body are normal; the lens is the subject of advanced subcapsular and cortical cataract. The retina shows much atrophy and loss of pattern. There is a flattened cystic space between the retina and pigment epithelium at the ora serrata on one side. There is some variation in the amount of pigmentation in the pigment epithelium in different parts. The choroid is thin. Sections of the optic nerve stained by the Weigert-Pal method show complete absence of medullary sheath staining of the nerve fibres. A fragment of a posterior ciliary nerve in the section shows medullary sheath staining.

The other methods of staining show marked degeneration of the optic nerve with apparent increase of fibrous tissue. There appears to be considerable increase in the fibrous tissue at the lamina cribrosa. The pial sheath is present and intact. The dural sheath is displaced outwards considerably and is also split up into numerous longitudinal bundles by a cellular new formation. This new formation is present mainly in the subdural space and is bounded internally by the pial sheath. At its thickest part in any of the sections this mass is about 3 mm. in thickness. It is composed of irregularly shaped masses of cells which are separated from neighbouring masses by strands of collagen fibrous tissue. Many of the masses of cells are roughly circular, and in some the cells have somewhat of a whorled arrangement. The most noticeable feature, however, is the presence of numerous small spaces between the cells and within the various masses of cells. Examination with a $\frac{1}{8}$th objective and No. 2 eyepiece shows the nuclei to be for the most part of size larger than that of a red corpuscle up to a diameter equal to that of two red corpuscles. The nuceli are circular or oval, are mostly lightly stained, and many of them possess a small dark nucleolus. The cytoplasm of individual cells is not clearly demarcated from that of neighbouring cells. Within the cytoplasm may be seen many minute clear

spaces. The larger spaces, already mentioned, are in all cases bounded by cells of the new growth. In these situations the nuclei are generally flattened and elongated. Bridging the larger spaces are frequent delicate strands of cytoplasm dividing these spaces into several parts. There are fairly numerous blood

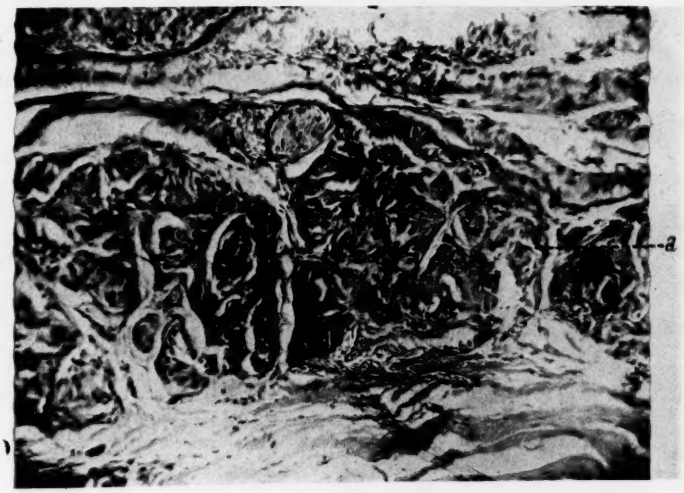
CASE II. FIG. 5.

Microphotograph, magnification 100. Shows new growth within the retina and a mass protruding into the vitreous cavity. *a*. Mass anterior to optic disc. *b*. and *c*. Branches of retinal vessels at disc. *d*. Growth within the retina.

capillaries present in the growth, but they are everywhere surrounded by a well-formed collagen fibre wall. Although, as already stated, the growth is for the most part within the subdural space or included within portions of the dural sheath, yet processes of the growth have in some places spread through and to the outer surface of the dural sheath. In some sections small masses of growth are seen in close connection with blood-vessels which lie within the sclera in the situation of perforating vessels to one side

of the optic nerve. There are some irregular masses of growth of small dimension within the atrophic retina near the disc margin. These masses of growth should certainly have been visible to ophthalmoscopic examination if the lens had not been cataractous. The growth cells extend to the extreme posterior limit of the sections.

The microscopic appearances of the new growth in this case resemble very closely those of one case described by Mr. Hudson and illustrated with microphotographs. In the latter case, however, the growth did not seem to have formed spaces among and



CASE II. FIG. 6.

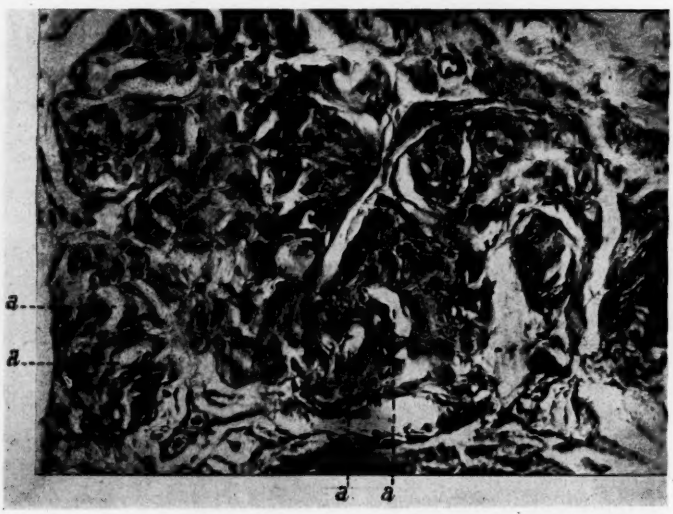
Microphotograph, magnification 100. Shows new growth lying between strands of dural sheath. The portion '*a*' is shown more highly magnified in the next.

between the cells of the growth. In the writer's case, the cell-vacuolation and the space formation between cells is a striking feature. This point is emphasized by Kettle and Ross. There is no doubt that this is a typical example of endothelioma of the optic nerve, arising almost certainly from the endothelium of the subdural space.

It may be of interest to review briefly the main clinical features of optic nerve tumours.

In Parson's *Pathology of the Eye* (Vol. II, p. 693), optic nerve tumours are subdivided into intradural and extradural. Hudson classifies these growths as: (*a*) gliomatosis, (*b*) fibromatosis,

(*c*) endothelioma. In Hudson's series account is taken under these headings strictly of primary tumours of the nerve; that is to say, tumours, arising outside the dural sheath and extending so as to involve this structure, are excluded. In Hudson's extensive review of the literature of this subject 118 cases were considered as being with fair certainty or probability of the first type—gliomatosis. Six cases were considered to be fibromatosis, and 29 cases as probable endotheliomata.



CASE II. FIG. 7.

Magnification 260. Shows the grouping of the cells, and the formation of many spaces between them, '*a*. *a*.' The nuclei show the light shade of endothelial cells, many with a darkly marked margin and a small dark nucleolus.

(*a*) *Gliomatosis*: Sex. Of 118 cases 113 had the sex noted: 70 were female, 43 were male. Age: More than 75 per cent. occurred within the first decade. Vision: Primary defect of vision and subsequent exophthalmos was the commonest sequence. Finally, in the majority vision was almost or wholly abolished. Exophthalmos was of very slow development. Protrusion of the eyeball was mainly in the orbital axis. Movement of the eyeball, if but little restricted, was regarded as suggesting freedom of the anterior part of the nerve from growth. The optic disc in most cases showed either papilloedema or post-neuritic atrophy. Hypermetropia was noted in 16 cases, and in 1 case this was

noticed to have increased. Incomplete removal of the growth was carried out in almost 50 per cent. of the cases.

Intracranial growth was found after death in 15. In 9 others cerebral affection was suspected.

Local recurrence in the orbit was not reported in a single case. Freedom from recurrence was noted in 16 cases for a period of from 2-24 years, and in 18 cases for from 1-2 years. In many of these cases removal of the growth was known to be incomplete.

Operation: In 43 removal of the tumour without removal of the globe was carried out. Methods of operating appear to be about fairly evenly divided between the method of Krönlein with bone resection, and one without bone resection. Twenty-eight cases treated by the former method gave 7 first class results, and 22 by the latter method gave 8 first class results. Complications, deviation, ptosis (8 and 3 cases respectively), *phthisis bulbi*, consequent enucleation, death from meningitis (2 cases to each method).

In the writer's case of gliomatosis the sex was male, the age at onset of symptoms was 8 years. Exophthalmos, however, was noticed before any failure of vision was detected. Final vision was merely perception of shadows. Exophthalmos was of six years' duration before operation, protrusion was mainly forwards, slightly upwards, movement was not restricted, the appearance of the disc suggested very slight papilloedema. Incomplete removal was practically certain for the degenerated cystic mass was opened at the posterior limit of the orbit during operation. This case has remained free from local recurrence or from cerebral symptoms for 17 months. The tumour was removed without bone resection, but resulted in a fixed divergent eye with ptosis.

In the circumstances of this patient it was surely an advantage to him that he should possess his own eyeball, although it be divergent, with paralysis of the levator, but it is open to discussion whether in the case of a patient in better circumstances the advantages would not have been greater with removal of the eyeball and the supply of an artificial eye, provided that the function of the levator palpebrae could have been retained.

(*b*) *Fibromatosis*: The six cases reviewed by Hudson included 5 in which the dural sheath alone was involved

(*c*) *Endothelioma*: Sex: 20 female, 7 male. Age: In more than 50 per cent. the onset of the symptoms took place after 30 years of age. Vision: Exophthalmos rather more often preceded visual defect. Exophthalmos was usually slow, but occasionally quite rapid in development. Movement of the eyeball was more frequently limited than in the group of cases of gliomatosis. This indicated probable involvement of the anterior part of the nerve, as is usual in this condition. Intracranial extension was found after death in 7.

Invasion of neighbouring structures was of fairly frequent occurrence. The optic nerve, nerve head, retina, choroid, sclera, orbital fat, and ocular muscles; nasal fossae (1 case). Recurrence was recorded in three, in one of which it was as late as 25 years after operation. Freedom from recurrence was only recorded in 6 cases, with an interval of from 7 months to 4 years after operation. *Treatment*: Removal of the tumour with the eyeball was reported in 17 cases, and without eyeball in 5 cases.

Differential diagnosis of endothelioma from gliomatosis depends upon the following factors:—

In endothelioma (1) the age is greater; (2) exophthalmos more often precedes visual disturbance; (3) limitation of movement; (4) circulatory obstruction in lids and conjunctiva; (5) pain; (6) intraocular extension.

In the case described by the writer the sex was female, age 79, vision was completely abolished and had, as far as could be estimated, been absent for a long period before proptosis was noticed. The exophthalmos, however, was of uncertain duration. Movement was slightly limited. This is in accord with the fact that the growth was situated at the posterior pole of the eyeball and extended into the coats of the same. Invasion of sclerotic and retina was present.

The above-described investigation leads to the conclusion that of two cases of primary intradural tumour of the optic nerve, one is an example of the group of gliomatosis of the optic nerve, the other of endothelioma which had its origin in the endothelium of the arachnoid sheath.

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ENDOTHELIOMA OF THE ORBIT*

BY

F. A. WILLIAMSON-NOBLE

LONDON

DURING the last two years at the Central London Ophthalmic Hospital there have been two cases of orbital tumour. Although the subject of these tumours is one which has been discussed at length by many writers, it is worth while describing these cases, as they both present some points of interest.

*Read in the Section of Ophthalmology of the Royal Society of Medicine, on March 9, 1923.

The first case M. W., a girl aged 15, was seen by A. Levy in March of last year. The history was advancement of right internal rectus, tenotomy of right external rectus in 1913. Proptosis of R.E. for two months, movement out and down very limited, up and in slightly limited.

The pupil was inactive, the disc a little pale and vision fingers at 4 feet. The eye was enucleated and the orbital growth removed piecemeal.*

Taking the growth first:—Portions were embedded in paraffin and a typical section (Fig. 1) shows at first sight a structure

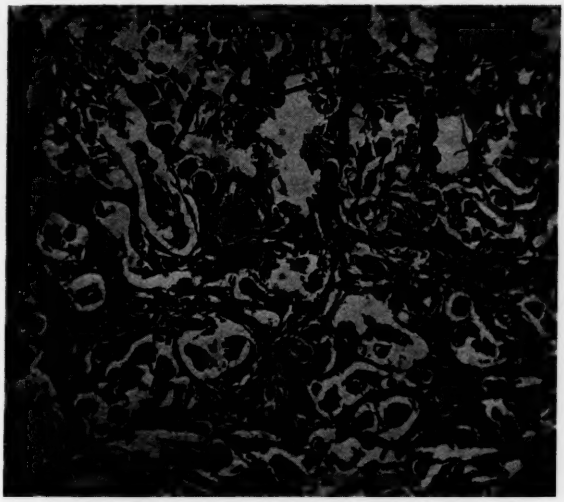

FIG. 1.

resembling a carcinoma of the breast. This section is stained with iron haemotoxylin and van Gieson. There is a large amount of fibrous tissue, enclosing spaces which contain numbers of large endothelial cells with round nuclei.

The arrangement of these cells is interesting. In the first place they show in part a slight tendency to form spaces, which is a characteristic of endotheliomata; and, secondly, there is a very marked tendency to the formation of whorls.

In the small whorls the cells are intact, but in the larger ones,

*A fortnight after operation M. W. had a course of radium treatment lasting a week, and up to date has had no sign of recurrence. On April 11, 1923, her doctor stated "she is quite all right."

i.e., those which have existed for a longer period, they have undergone complete degeneration and present themselves as a plaque of fibrous tissue, which stains a uniform red with van Gieson's stain and shows no evidence of cellular structure. These masses constitute the psammoma bodies found in some meningeal growths.

These two characteristics may be taken to place the tumour definitely within the category of endotheliomata. It is of scirrhous character and closely resembles the type shown by M. S. Mayou to arise from the proliferation of the endothelial lining of blood-vessels rather than of lymphatics.

It closely invested the optic nerve and by contraction of the fibrous tissue exerted considerable pressure on it.

Fig. 2 shows the vacuolation which has occurred in the nerve as

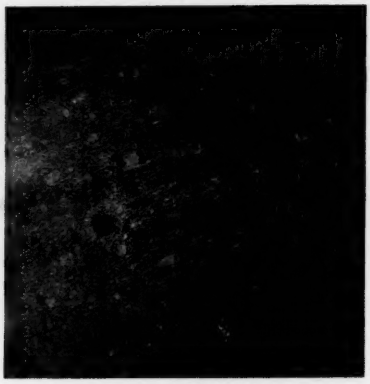

FIG. 2.

a result of this pressure, and Fig. 3 the papilloedema which has resulted. An interesting feature of this is, that although the swelling is very marked, it has affected only the nasal side of the nerve head, where the vessels can be seen in section.

As regards the site of origin of the tumour—it is possible that in this case it has arisen from the endothelial cells wrapped round the strands of the pia arachnoid. The next section, Fig. 4, shows the dura on one side and the nerve on the other. The space between them is occupied by cells arranged in whorls similar to those already seen in other parts.

If the section be examined under a high power one can trace a definite continuity between the endothelioma cells and the endothelial cells on the inner surface of the dura.

This section, however, cannot be regarded as conclusive, as the

FIG. 3.

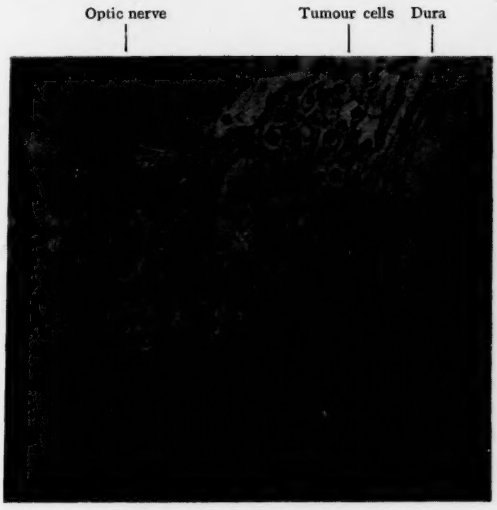

FIG. 4.

same appearance might conceivably be produced by infiltration from without of the subdural space. The anterior part of the eye, when examined macroscopically, presented the swelling shown in

the next section, Fig. 5. At first sight I took it for an extension forwards of the growth; microscopically, however, it presented the

FIG. 5.

appearance in Fig. 6. It is covered with a fairly thick epithelium resembling that of the conjunctiva, but differing markedly from

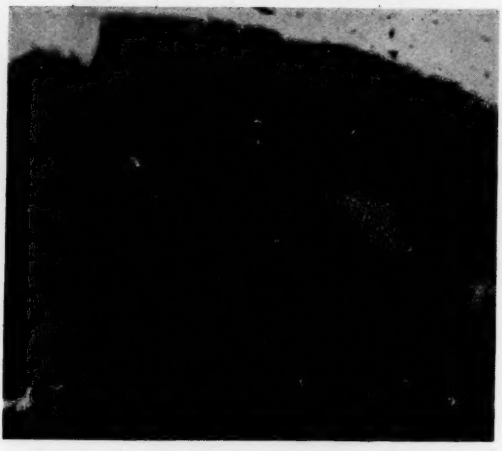

FIG. 6.

it in containing sebaceous glands and hair follicles. The swelling is just behind the limbus and in the horizontal plane on the nasal side of the eye. It is probably a dermoid, as this is a very common situation for these growths. Another interpretation is that during

a somewhat vigorous tenotomy by an operator unknown, some epilated lashes and skin from the lid margin have found their way into the conjunctival wound where they have taken root and grown. This is an attractive hypothesis, as the growth occupies the probable site of the tenotomy wound, but the presence of sebaceous glands favours the diagnosis of a dermoid, as the glands could not have been implanted with an epilated cilium.

The second case, M. S., was that of an orbital tumour occurring in a boy aged 3½ years, who was admitted under A. Levy. There were the usual signs of chemosis, dilated inactive pupil, some swelling of the disc and proptosis, in this case straight forward. There was no perception of light and no movements were possible.

FIG. 7.

After enucleation of the eye, the orbit was found to be occupied by a solid mass and a periosteal elevator was used to clear it out. It was thought at the operation that the mass passed through the sphenoidal fissure.

The boy died a few months later with signs suggesting the presence of an intracranial growth, but unfortunately permission for an autopsy could not be obtained.

Fig. 7 shows the condition of the nerve head. There is a good deal of swelling present, but in this case it affects both sides of the disc and not the nasal portion only. The physiological pit is still present. In the swollen part the nuclei are separated and thinned out and on one side the nerve has bulged laterally, separating the retina from its attachment to the choroid. On the other

side the inner nuclear layer has been thrown into three folds. A few haemorrhages are also present. These changes are, of course, characteristic of papilloedema, and are well shown in this specimen.

The tumour itself was received in pieces. It was not possible to recognize the several portions of it apart from microscopical examination. They were therefore embedded *en masse* in celloidin, and portions requiring further examination were removed and re-embedded.

At first sight the tumour appears very complex. Some portions of it contain bone, others apparently normal cartilage; there are numerous deeply staining cells occurring in some parts, while they are not so numerous in others.

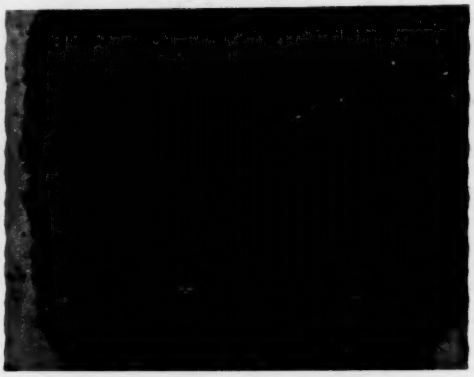

FIG. 8.

At first, considering its complexity, I thought it might be a mixed tumour arising from the lacrimal gland in a fashion analagous to the formation of mixed salivary gland tumours. The gland was present in the pieces removed from the orbit; a section of it is shown in Fig. 8. Some haemorrhage has occurred into its substance, and on one side there are numerous darkly stained cells, but the gland cells appear normal and there is no evidence of their having taken on any neoplastic activity. No evidence of new growth was found in any of the sections examined. The age of the patient is also against this diagnosis.

The next section, Fig. 9, shows a characteristic portion of the growth. There are some trabeculae of cartilage, and numerous small darkly staining cells. These cells do not actually invade the cartilage, and in many places can be seen to form spaces filled with blood. It seems probable, therefore, that they are endothelial cells, especially when examined under a higher power. Fig. 10.

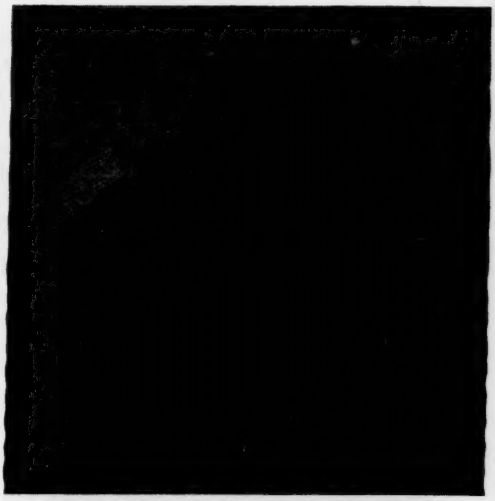

FIG. 9.

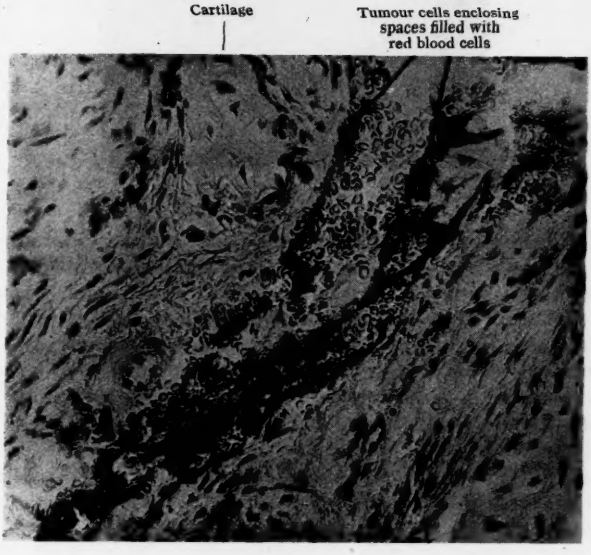
Cartilage
Tumour cells enclosing spaces filled with red blood cells

FIG. 10.

I have already mentioned that this tumour was of singularly complex type, and that parts of it contained bone.

The next section, Fig. 11, shows such a portion. There are several bony trabeculae enclosing spaces which contain red blood cells. A few of the typical endotheliomatous cells are present on one side.

I have examined sections of the optic nerve, but have been unable to find any evidence of its involvement in the growth, or of the involvement of the dura or pia. The nerve showed some evidence of compression, and there were haemorrhages between the nerve bundles.

Summing up then, we have a complex tumour filling up the orbit and consisting of endothelial cells forming blood spaces,

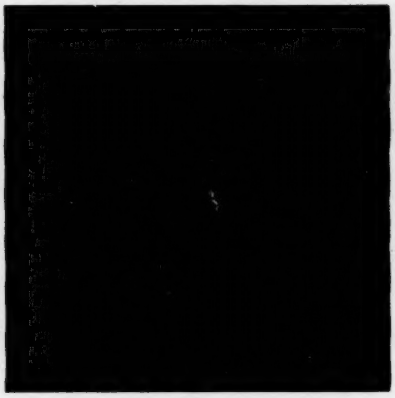

FIG. 11.

and of fibrous tissue, cartilage, and bone. The diagnosis would seem to rest between sarcoma, teratoma, and endothelioma. Although the tumour contains a great number of angioplastic cells, which are of endothelial origin, yet it is not conceivable that these cells would form cartilage and bone in the way that has occurred.

The tumour is not, therefore, a typical endothelioma, and it cannot owe the formation of a large part of its substance to the activity of these cells.

On the other hand, one is loth to label a tumour—where there has been such marked and prolific activity of endothelial cells—a sarcoma.

A truer conception of its formation is to go back to the stage in which the embryo consisted of a mass of pluripotential cells, to

assume that some of these cells were cut off during development, and later, resumed activity. In this way one can account for the formation of the various types of tissue present. In other words the growth would appear to be a teratoma of the orbit.

Careful search was made for evidence of the presence of other structures, e.g., remnants of gut, Lieberkühn's follicles, etc., which have been described in connection with teratomata, but none was found.

THE OPHTHALMIC HISTORY OF SAMUEL PEPYS

BY

R. R. JAMES

LONDON

IN the *Lancet* for June, 1895, appeared an article by Sir D'Arcy Power on the Medical Histories of Samuel Pepys and of his wife, in which the question of Pepys' eyesight and ocular complaints is gone into at some length. It is not possible to add much, if anything, to what Sir D'Arcy sets out in his paper, but, as it is nearly thirty years since it was published, it occurred to me that the ophthalmic history of the Diarist might be reprinted in the pages of the BRITISH JOURNAL OF OPHTHALMOLOGY with advantage to the journal and to its readers.

Pepys was born in 1633; his diary starts January 1, 1659 (O.S.), and is continued until May 31, 1669.

Sir D'Arcy finds the first mention of eyes on May 22, 1660. Pepys had gone over to Holland with the ships which were to bring Charles II back to his throne in England. There was given the usual Royal Salute and much firing of cannon. Pepys records, "The gun over against my cabin I fired myself to the King, which was the first time he had been saluted by his own ships since this change; but, holding my head too much over the gun, I had almost spoiled my right eye." We have no knowledge of what damage, if any, was done, but we find Pepys harping on matters connected with eyesight, when, on May 24 at supper, "I put Dr. Scarborough in mind of what I heard him say, that children do, in every day's experience, look several ways with both their eyes, till custom teaches them otherwise; and that we do now see with but one eye, our eyes looking in parallel lines." On April 25, 1662, when he was at Portsmouth, Pepys "was much troubled in my eyes, by reason of the healths I have this day been forced to drink"; and on his return to London he was let blood, about sixteen ounces, by a Mr. Holliard, who received five shillings for his pains.

On May 5, 1664, occurs, " My eyes beginning every day to grow less and less able to bear with long reading or writing, though it be by daylight; which I never observed till now." On October 5, 1664, " Comes Mr. Cocker to see me, and I discoursed with him about his writing and ability of sight, and how I shall do to get some glass or other to help my eyes by candlelight; and he tells me he will bring me the helps he hath, within a day or two, and show me what he do." On October, 7, Mr. Cocker came "and brought me a globe of glasse and a frame of oyled paper, as I desired, to show me the manner of his gaining light to grave by, and to lessen the glaringeness of it at pleasure by an oyled paper. This I bought of him, giving him a crowne for it; and so, well satisfied, he went away."

On May 23, 1666, " my right eye sore and full of humour of late, I think, by my late change of my brewer, and having of 8s. beer."

On October 11, 1666. " Memorandum. I had taken my journall during the fire, and the disorders following, in loose papers, until this very day, and could not get time to enter them in my book till January 18, in the morning, having made my eyes sore by frequent attempts this winter to do it."

On December 24, 1666, " I this morning did buy me a pair of green spectacles, to see whether they will help my eyes or no."

Before this, on January 19, 1664, " My eyes began to fail me, and to be in pain, which I never felt to now-a-days."

On June 2, 1667, " being weary and almost blind with writing and reading so much to-day."

On July 31st, 1667, " to my office, till my eyes began to ache."

On September 25, 1667, " I to the King's Playhouse, my eyes being so bad since last night's straining of them, that I am hardly able to see, besides the pain which I have in them."

On November 4, 1667, " to Turlington, the great spectacle maker, for advice, who dissuades me from using old spectacles, but rather young ones, and do tell me that nothing can wrong my eyes more than for me to use reading glasses, which do magnify much." Ten days later, " to bed, my eyes being bad again; and by this means, the nights, now-a-days, do become very long to me, longer than I can sleep out."

On January 24, 1667, " My eyes being very bad again with over working with them." On April 30, 1668, " My head and eyes out of order, the first from my drinking wine at dinner, and the other from my much work."

On June 23, 1668, " To Dr. Turberville about my eyes, whom I met with and he did discourse, I thought learnedly about them; and takes time before he did prescribe me anything, to think of."

Six days later. " To Dr. Turberville's, and there did receive a direction for some physic, and also a glass of something to drop into my eyes: he gives me hopes that I may do well. On June 30, " for I am come that I am not able to read out a small letter, and yet my sight good for the little while I can read, as ever it was, I think." On July 3. " To see Dr. Turberville and others to dissect several eyes of sheep and oxen, with great pleasure, and to my great information. But strange that this Turberville should be so great a man, and yet, to this day, had seen no eyes dissected, or but once." On July 13, he was bled to fourteen ounces, " towards curing my eyes." On July 31. " The month ends mighty sadly with me, my eyes being now past all use almost; and I am mighty hot upon trying the late printed experiment of paper tubes."

On August 11. " At the office all the afternoon till night, being mightily pleased with a trial I have made of the use of a tube-spectacall of paper tried with my right eye."

On September 22, " walking in the dark, in the garden, to favour my eyes, which I find nothing but ease do help."

At the end of November, 1668, " But my eyes are come to that condition that I am not able to work; so God do his will in it."

On December 4, " wrote a letter at the Board, by the help of a tube."

On January 26, " but my eyes are now too much out of tune to look upon them (printed music books) with any pleasure."

On January 28, Pepys was given " a candlestick, made after a form the donor remembers to have seen in Spain, for keeping the light from one's eyes."

By Feburary 3 he was dictating all his business and correspondence, finding that he can do a great deal of business this way without spoiling his eyes, " I being very well in my eyes, after a great day's work."

The tube is mentioned again on February 16, when he wrote up his journal, " since this day se'nnight."

On February 22 at the play, the light of the candles gave him mighty pain.

On March 1st. " I did bring home a piece of my face cast in plaister, for to make a vizard upon, for my eyes."

On March 28, he notes " I find it most certain that stronge drinks do make my eyes sore, as they have done heretofore always, for, when I was in the country, when my eyes were at their best, their stronge beere would make my eyes sore."

On April 2, " This night I did bring home from the King's pottecary's in White Hall by Mr. Cooling's direction, a water that he says is mighty good for his eyes."

Nine days later, he notes that he had written up his journal " with the help of my left eye through my tube, for fourteen days past." On April 14 " it is with great trouble that I now see a play, because of my eyes, the light of the candles making it very troublesome to me."

On April 24. " Well pleased to night to have Lead, the vizard maker, bring me home my vizard, with a tube fastened in it, which, I think, will do my business, at least in a great measure, for the easing of my eyes." And next day, at his office, " thither comes Lead with my vizard, with a tube fastened within both eyes; which, with the help which he prompts me to, of a glass in the tube, do content me mightily."

On the 30th, " the mistress of the house, an oldish woman in a hat, hath some water good for the eyes, she did dress me, making my eyes smart most horribly, and did give me a little glass of it, which I will use, and hope it will do me good."

From this date to the end of the Diary, scarce a day passes without some reference to his eyes, either sore after use at business or at the play. On May 24, The King " expressed great sense of my misfortune in my eyes," Pepys having been " led " by the Duke of York to his Majesty. He was ordered to give his eyes rest this summer.

The last sentence of his Diary on May 31, 1669, runs as follows :—" And so I betake myself to that course, which is almost as much as to see myself go into my grave; for which, and all the discomforts that will accompany my being blind, the good God prepare me! "

Pepys, of course, did not go blind. He lost his office under William and Mary and led a studious life at Clapham in the house of his old friend and servant, William Hewer, where he died May 26, 1703.

Sir D'Arcy considers that Pepys' defect was one of ametropia with presbyopia. The ametropia, I think, is certain, but I am not so sure about the presbyopia, as Pepys was well under forty when the Diary ends. I think it far more likely that much of his trouble was due to an error in muscle balance, possibly an insufficiency of convergence. The spectacle maker would hardly have dissuaded him from " old spectacles," the higher plus spheres, if a large hypermetropic error had been present, and Pepys himself admits that for a short time of reading his sight was as good almost as ever it was.

Glare was obviously a factor in the case, hence the green spectacles and the oiled paper. The fact that he got relief from uniocular vision in a tube, I think, is much in favour of his defect being concerned with binocular vision, and I hazard the guess

that he would have been made comfortable by a low plus spherocylindrical lens combined with prisms bases in and suitably tinted.

NOTES

Mr. Holliard was probably the Thomas Hollier, Warden of the Barber Surgeons' Company, 1664, 1665, 1666, and Master in 1673.

Dr. Scarborough is Sir Charles Scarborough, 1616-1694. Physician to King Charles II and James II. See *Dic. Nat. Biography*.

The King's Pottecary was most probably John Jones, who was appointed Apothecary and Perfumer to the Royal Household, March 21, 1660 (O.S.). (Payments, Auditor's Patents, E.403, 2461, in Public Record Office.). Mr. John Jones still held his office of King's Apothecary in August, 1673, when it was decided that he should not be nominated for the Mastership of the Society of Apothecaries. In 1676, he presented the picture of Charles I to be hung in the Hall.

A MODIFIED SUCTION CATARACT EXTRACTOR

BY

R. FOSTER MOORE

LONDON

I THINK those surgeons who have had any considerable experience with Barraquer's apparatus will have felt that the "erisiphake" itself is not entirely satisfactory; the instrument here described has been designed with a view to incorporating what seems to me to be a number of improvements upon Prof. Barraquer's instrument.

It consists of two parts, the handle (A) and the cup bearing portion (B). The handle is connected to Barraquer's vacuum pump by means of thick rubber tubing. It is traversed from end to end

by a medium sized bore, which bore communicates with the exterior by the lateral hole (e); above this hole is a small knob the idea of which is to act as a guide to the finger or thumb; it is not essential. The cup-bearing portion (B) fits into the handle (A) by an air-tight cone junction and can be placed at any angle relative to the lateral hole (e). Two cup-bearing portions are supplied having cups of different sizes; the curvature of the stem (d) can be altered.

Method of use

The instrument is used with the right hand for the right eye and the left for the left eye. It is held like a pen, the pulp of the thumb being over the hole (e). For ease and delicacy of use it is important

that the position of the cup-bearing portion relative to the hole (e), should be carefully adjusted to the position which is most comfortable for the individual operator. Before the instrument is introduced into the eye, the thumb, without being shifted, is rotated a little outwards so as to uncover the hole (e), with the result that air is sucked in freely through this hole and no vacuum is conveyed to the cup. The cup is now introduced into the anterior chamber, and when it is in accurate position on the front of the lens the thumb is rolled back into position so as to close the hole (e) and the vacuum is now immediately transmitted to the lens; a very slight movement of the thumb is sufficient to effect this closure, or if preferred, the position of the cup-bearing portion relative to the hole (e) can be so arranged, that the hole is closed by one or other finger. It will be appreciated that the hole takes the place of the valve in the Barraquer instrument. One was in some doubt as to whether, in spite of the hole (e) being open, sufficient vacuum might be transmitted to the eye to suck in the iris, or whether there might be an embarrassing delay in the development of the full vacuum, owing to the dead space in the instrument and connecting tube; no trouble whatever was experienced in either respect.

Latterly I have been using this instrument at Moorfields in the place of the Barraquer pattern and I prefer it to the latter; the following appeal to me as its advantages:—it is small and can be held with the delicacy of a pencil:—the cup-bearing portion can be placed in any position relative to the hole (e):—the air-way has a good bore throughout and consequently there is good suction:—there is no complicated valve which can be blocked by blood coming from the iris being sucked into it when an iridectomy has been performed, and indeed no mechanism which can get out of order:—the control of the vacuum inside the cup is effected by a very slight movement of the thumb or finger which does not interfere with the delicacy of manipulation of the instrument, a point of the greatest importance.

The instrument is made by Messrs. Weiss & Son of Oxford Street and is so simple that its cost is about a third of the more complicated instrument.

THE NEW REDUCED EYE ADAPTED TO ACCOMMODATION

BY

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IN my recent publications [1] and [2], I have attempted to present a reduced eye, differing essentially in principle of construction from all others hitherto offered. I have composed the following system of equations, according to the exact schematic eye of Gullstrand[3]:—

$$\text{Refractive power } \frac{n-1}{R} = 58.64D \quad . \quad . \quad \text{I and}$$

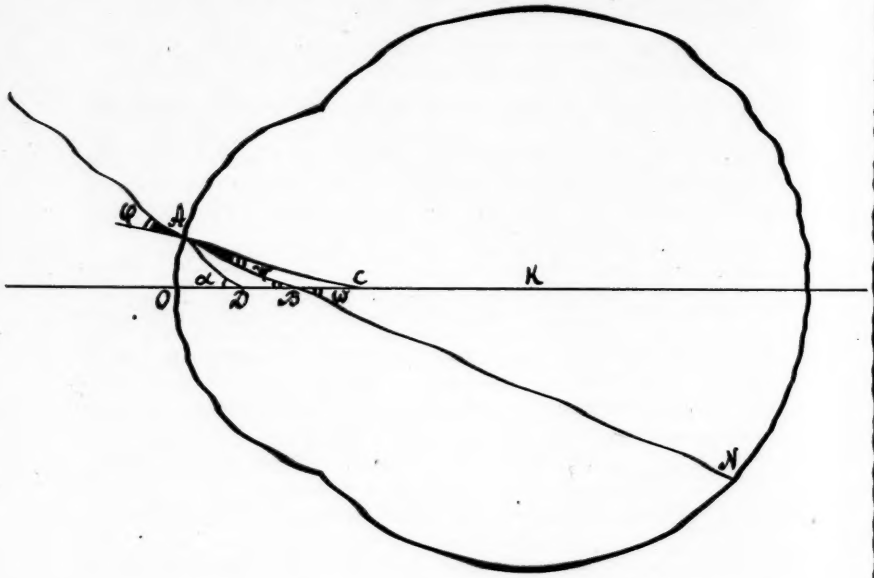
$$\text{Spherical aberration } \frac{3.2^2}{8n(n-1)R} = 0.387 \text{ mm.} \quad \text{II.}$$

From these the constants of the reduced eye are determined: $R = 6.8$ mm., and $n = 1.4$. The values are much higher than the constants of the generally used reduced eyes of Listing[4], Donders[5] and Gullstrand[3], but they are less than the constants of von Hasner[6]. Thus my reduced eye occupies the middle place. The following table shows the advantages of my reduced eye:—

	Schematic eye of Gullstrand.	Reduced eye of Donders.		Reduced eye of Hasner.		Reduced eye of Gullstrand.		Reduced eye of Verbitzky.	
			Error in % %		Error in % %		Error in % %		Error in % %
Refractive power...	58.64D	66.67	13.7	66.67	13.7	58.48	0.3	58.82	0.3
Astigmatism of oblique incidence (at $\angle a = 5°$)	0.086D	0.104	20.9	0.083	3.5	0.092	7.0	0.084	2.3
Spherical aberration (at r = 2 mm.)	1.0D	2.33	133.0	0.80	20.0	1.56	56.0	0.99	1.0
Length of the eye...	24.0mm.	19.3	19.6	22.2	7.5	22.2	7.5	23.4	2.5
Radius of curvature of the corneal surface	7.7mm.	5.0	35.1	7.5	2.6	5.7	26.0	6.8	11.7
Radius of curvature of the retinal surface	10.5mm.	8.4	20.0	9.7	7.6	9.7	7.6	10.2	2.9

In the present work I shall try to adapt the reduced eye to accommodation. In the drawing is represented the contour (optical) of the reduced eye. In order that such an eye shall closely correspond to the schematic eye it must possess coincidence of its contours and equality of its angles. For the exact schematic eye of Gullstrand[7] it is known that DC = 4.757 mm. at rest and = 5.136 mm. at maximal accommodation. Then, taking into consideration that the radius of curvature of cornea R remains without change in the

schematic eye in accommodation, we deduce from the formula $\sin \varphi = \frac{DC \sin \alpha}{R}$ for the middle $\angle \alpha$ at 5° two values of the $\angle \varphi$: 3.045° at rest and 3.288° at maximal accommodation. Further, applying the known coefficient of augmentation in diaphragms for the schematic eye of Gullstrand[7] K = 0.909 at rest and K = 0.941 at maximal accommodation from the formula $K = \frac{n \tan \alpha}{n, \tan \pi, n' \omega}$ [where $\alpha = 5°$, n (air) = 1, n' (vitreous humour) = 1.336] we shall



obtain for the angle ω two values: 4.121° and 3.981°. From the correlation $\alpha - \varphi = \omega - \psi$ we shall have the $\angle \psi$ the two values: 2.166° and 2.269°. But, since $n = \frac{\sin \varphi}{\sin \psi}$ we determine two values for the index of refraction: 1.4057 and 1.4487 at rest and at maximal accommodation. In the schematic eye of Gullstrand[3] the maximal accommodation = 10.6D. Then the change of n by 1 dioptre of accommodation $= \frac{1.4487 - 1.4507}{10.6} = 0.00406$, or, taking the round figure, $\triangle n = 0.004$.

The refractive power of the reduced eye proposed by me = 58.82D, at maximal accommodation = 58.82 + 10.6 = 69.42. Hence, by

the formula $D = \frac{n - 1}{R} = \frac{0.4 + 0.004 - 10.6 - 1}{R} = 69.42$ we shall find $R = 6.373$ mm. The radius of curvature changes from 6.8 to 6.373. On each one dioptre the change will be $\frac{0.427}{10.6} = 0.04028$, or $\triangle R = 0.04$ mm.

Thus we obtain the following simple rule:—*For every dioptre of accommodation of the reduced eye the index of refraction* n *increases by* 0.004 *and the radius of curvature* R *diminishes by* 0.04 *mm.* How satisfactory is the effect of accommodation in this reduced eye will be seen in the following table:—

Accommodation.	R	n.	D it must be.	D in reality.	Difference.	Error of the accommodation in % %
	mm.					
0D	6.80	1.400	58.8	58.8	0	0
1	6.76	1.404	59.8	59.8	0	0
2	6.72	1.408	60.8	60.7	−0.1	5
3	6.68	1.412	61.8	61.7	−0.1	3
4	6.64	1.416	62.8	62.6	−0.2	5
5	6.60	1.420	63.8	63.6	−0.2	4
6	6.56	1.424	64.8	64.6	−0.2	3
7	6.52	1.428	65.8	65.6	−0.2	3
8	6.48	1.432	66.8	66.7	−0.1	1
9	6.44	1.436	67.8	67.7	−0.1	1
10	6.40	1.440	68.8	68.8	0	0
11	6.36	1.444	69.8	69.8	0	0
12	6.32	1.448	70.8	70.9	+0.1	1

Whether my rule for the accommodated reduced eye is the most suitable one, or some other correlation would be better, will be seen in further works. But the numberless problems of accommodation which require solution denote persistently, I think, the necessity of the construction of an accommodated reduced eye.

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MICROPHTHALMIA WITH VERTICAL SLIT-LIKE PUPIL, AN OPACITY OF THE CORNEA, AND REMAINS OF PUPILLARY MEMBRANE

BY

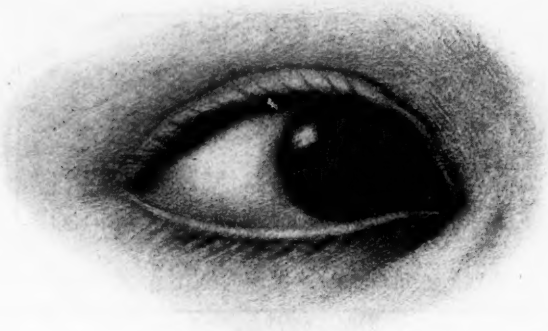
W. DUNCAN LAWRIE, M.D., F.R.C.S.Edin.

STOKE-ON-TRENT

THIS condition was found in a school girl, Elsie C., and the following are the particulars:—

The left eye was normal, V. 6/6.

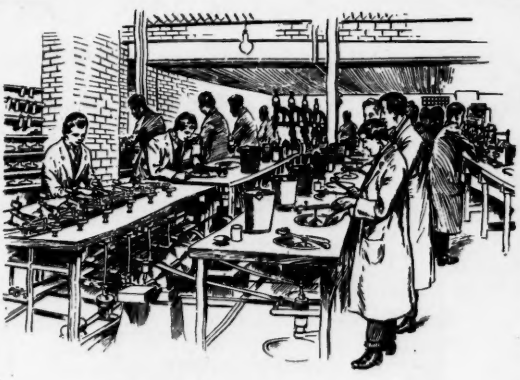
The right eye showed the ordinary appearances of microphthalmia. The cornea measured 8 millimetres in the transverse



diameter (compared with 11 millimetres for the left cornea). This eye was in a position of convergent strabismus, and the vision was 6/36 (one letter) improved to 6/24 (one letter). Refraction -3 D. sph. with -3 D. cyl. axis 180°.

A superficial oval opacity occupied part of the upper nasal quadrant of the cornea, the upper and inner border being formed by the margin of the cornea from the upper end of the vertical meridian to 2 o'clock, and the remainder of the outline of the oval by a line of similar curvature passing through the cornea and joining the extremities of this arc.

At the upper end of the vertical meridian in the anterior chamber there was a light coloured tag, broad at its base on the iris, bearing at its apex two or three filaments, one of which was longer than the others.



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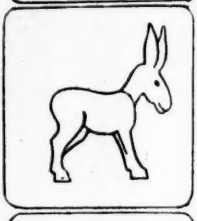

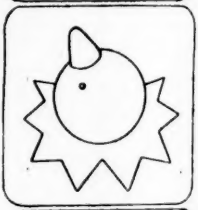

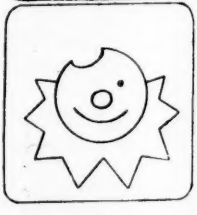

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▽

Demonstrating at the Ophthalmological Society's Exhibition, in April, New Models in Test Cases.

There were two tongue shaped areas near the lower end of the vertical meridian, apparently either in the posterior layers of the cornea or applied to its posterior surface. The artist has indicated these in the illustration.

The pupil was a vertical slit of a fusiform shape and closely resembled a button-hole with both ends pointed, the iris pattern within the circulus iridis minor corresponding with the pattern made by button-hole stitching. The illustration is from a drawing made by Mr. W. Morse, Art Teacher, Stoke-on-Trent Education Authority.

The edges of the pupillary slit were in constant movement contracting and dilating the pupil.

Under homatropin the pupil became first oval and on full dilatation round.

I am indebted to Mr. E. Treacher Collins for information regarding this defect, particularly for suggesting that remains of pupillary membrane should be looked for, and for a reference to Sir W. R. Wilde's " Essay on the Malformations and Congenital Diseases of the Organs of Sight," published by John Churchill in 1862. In this article a case of double microphthalmia is described. " In both eyes there existed irregularity of the pupil, in form as well as in position, that of the right being triangular, and that of the left being transversely oval."

ANNOTATIONS

Ophthalmic Museums

A step in the right direction has been taken by Dr. James Moores Ball, of St. Louis, U.S.A., who has given his valuable collection of specimens, books, and instruments to the Army Medical Museum at Washington, D.C. on the several conditions that it is to be kept intact, properly cared for, and is to bear the donor's name. Thus the ophthalmic treasures assembled during a period of thirty years now rest under the aegis of the Government. Under the present arrangements the collection has five divisions: 1, pictorial items; 2, gross dissections and gross pathology; 3, microscopical items; 4, ophthalmic armamentaria; and 5, rare ophthalmic literature. Several gentlemen who belong to this country, including Mr. E. Treacher Collins and Mr. J. Gray Clegg, are ready to contribute to the Ball museum. In describing the steps that have been taken Dr. Ball writes: " It is a pleasure to the writer to give to the Government something it did not possess, something it needed, and something that money could not buy." (*Journ. Missouri State Medical Association*, Jan., 1923, p. 37.)

Anti-trachoma League

In the *Revue Générale d'Ophtalmologie* for November, 1922, will be found an interesting résumé of the proceedings of the trachoma meeting of the French Colonial Congress of Public Health, held at Marseilles on September 15 last. After a number of oculists had dealt with various points in connection with trachoma—the chief of which were the question of compulsory notification and the formation of an Anti-trachoma League—Morax outlined the functions of the League. These may be summarised as follows:—(1) The collection of statistics, (2) propaganda work, (3) subvention of research, (4) organization of anti-trachomatous hygiene and therapeutics in infected regions, (5) social and financial support, and (6) the establishment of hospitals, dispensaries and laboratories. Professor Truc of Montpellier closed the discussion by putting to the meeting the following resolution:—

"The Colonial Congress of Public Health, considering that granular ophthalmia constitutes a formidable scourge in our colonies and in certain important centres of the metropolis, is of opinion (1 that the fight against trachoma should be organized in a more methodical and active manner, (2) that an anti-trachoma league should be founded charged with the duty of studying the regulations and measures to be taken, and of giving support to all efforts in the direction of studying and combating this contagious ophthalmia."

The resolution was unanimously adopted by the meeting.

COUNCIL OF BRITISH OPHTHALMOLOGISTS ANNUAL REPORT

THE Council of British Ophthalmologists presents its report for the Session 1922-23.

At the first meeting of the Session the following officers were elected:—President, Mr. J. B. Lawford; Vice-Presidents, Sir George Berry and Mr. E. Treacher Collins; Hon. Treasurer, Mr. J. H. Fisher; Hon. Secretary, Mr. M. S. Mayou.

The following members were elected to serve on the Executive Committee:—

Messrs. Collins, Fisher, Paton, and Sir John H. Parsons, with the President and Secretary ex-officiis.

The Council has revised and published the report on the question of Sight-testing Opticians.

A Committee is still engaged on the Standardization of Test Types.

At the instigation of the Royal Society of Medicine, a new

Committee has been appointed to deal with the standards of vision for scholars and teachers in Council Schools.

During the course of the year several questions have been referred to the Council for its opinion and advice. Amongst these may be mentioned that of lectures to candidates for the examinations of the British Optical Association and Spectacle Makers Co., by the Universities of Glasgow and Liverpool; also proposals concerning sight-testing by opticians under the National Insurance Act.

Another important question which the Council has had under consideration is the establishment of an International Year Book of Ophthalmology in English, proposed by Ophthalmologists in America.

The expenses of the Council have been defrayed as in previous years by its members.

The Council has to thank the Council of the Royal Society of Medicine for the use of a room for its meetings.

ABSTRACTS

I.—LATE RESULTS OF SCLERECTO-IRIDECTOMY

Lagrange and Baron.—Remote results of sclerecto-iridectomy in the treatment of chronic glaucoma. (Résultats éloignés de la sclérecto-iridectomie dans le traitement du glaucome chronique.) *Arch. d'Ophtal.*, January, 1923.

The eminence of the senior author and the precision with which he and his assistant have collated the results of 10 years' work give exceptional value to this article. It covers 40 pages, presents five principal headings, and abounds in figures; the following is merely a summary.

1. *Precision in terminology.* Lagrange's well-known operation comprises excision of tissue from sclera and from iris, and the author's name for it is correct. The term "irido-sclerectomie," substituted by certain writers, is faulty for it does not indicate the treatment of the iris; true, it is shorter by one syllable and a little easier to say, but precision should not be sacrificed to brevity or euphony.

2. *What are to be taken as remote results?* In general surgery cicatrices change long after the lips of the wound are joined, and the same is true of incisions in the eye. In chronic glaucoma success depends on lasting fistulization of the eye, and at least one year should pass before the result is reported. All cases included in these statistics were re-examined at least one year after the

operation, and many of them much later, for they represent a period of 10 years' work.

At the London Congress of 1913 Lagrange reported his results for the previous decade, under the same restriction. They are not exactly comparable with those of the later period, for among the earlier cases were a considerable number in which simple sclerectomy (i.e., without iridectomy) was employed, but a brief restatement of them may be given here:—Of 104 patients 15 showed lowered visual acuity when re-examined, but in 8 of these it was due to development of cataract long after the operation, and in 4 of these latter the cataract was extracted later with success; of the 7 cases of actual non-success, one was an acute glaucoma, 2 showed further atrophy of the nerve, 1 presented "inhibition rapide," 1 retinal haemorrhage, 1 recurrent haemorrhage into anterior chamber, 1 failed because the sclerectomy was too small.

These 104 cases were those which were examined after at least one year; the total number operated on was 240, and among the whole of these not a single case of infection, loss of vitreous, expulsive haemorrhage, or traumatic cataract was seen.

3. *Cases not previously published.* During the 10 years 1913 to 1923 the great war threw new duties on the Chief and his Staff, and while the number of cases treated was larger, the proportion which could be followed closely enough for inclusion in these statistics was smaller than before. In all the included cases the acuity of vision and the field were carefully examined before the operation; in some the tension was tested only with the finger, but in most of them the tonometer was used. They were 49 in number and comprised 68 operations. In a few the iridectomy was a peripheral button-hole, but in most it was complete; 4 of the cases were of irritative type, presenting slight congestion with frequent well-marked rises of tension; 28 were chronic with persistent excess; 17 were chronic with intermittent excess. No case of acute glaucoma was treated by sclerecto-iridectomy.

Here follows a detailed statement of the cases covering 16 pages.

4. *Results.* Acuity of vision showed no further loss in 25 eyes, and to this group may be added 3 more in which it fell only a little in accordance with advancing age; in 18 it rose; in 17 it fell. In 5 cases vision was already lost before the operation, which was performed merely to reduce tension. In 6 cases the loss of acuity was due to gradual development of senile cataract not attributable in any way to the operation, for the tension remained normal and the projection good. Reckoning these with the good results, the successes amounted to 82.5 per cent. The non-successes appeared to depend on continued atrophy of the nerve in spite of normalized tension.

The results as regards tension relate only to cases measured

with the tonometer, 40 in number. It was normalized, i.e., it lay between 15 and 27 (Schiötz), in 32 cases, but in this number are included 2 in which it stood at 30 (Schiötz), for the functional results in these were excellent. Slight hyper-tension was found in 5 cases and appeared to be due to insufficient removal of scleral tissue. Slight hypo-tension was found in 4 cases. Some authors regard this as no disadvantage; Lagrange considers a tension below 15 (Schiötz) as likely to prejudice the eye. The successes as regards tension were therefore 80 per cent., or 87.5 if hypotensions are included.

No case was seen of infection, sympathetic ophthalmia, traumatic cataract, or wound of the ciliary body.

5. *Comparison with the statistics of other authors.* This naturally relates chiefly to Elliot's sclero-corneal trephining. Lagrange's cases showed no instance of infection immediate or late; Cridland has reported 70 cases of sclerecto-iridectomy with the same immunity. To the credit of trephining is cited a report by Birch-Hirschfeld of 60 cases without an infection, but others have been less fortunate. Careful study of recent writings on the point will convince anyone, says Lagrange, that the longitudinal resection of the sclera is safer than the use of the trephine. Complications after sclerecto-iridectomy in acute glaucoma have been reported, but the operation is not to be blamed for these, for Lagrange has expressly stated that it is not suited for cases of this type.

As regards visual acuity the greater number of statistical reports are unfortunately found to lack scientific accuracy, so that comparison is difficult. Four favourable exceptions to this statement are cited; they are all Continental. Especial attention is drawn to recent excellent statistics by Lietto-Vollaro of Florence, who has followed Lagrange's method (*Bollettino d'Oculistica,* June-July, 1922). On the whole the conclusion is that the visual results of trephining have been inferior to those of sclerecto-iridectomy. When the tension is normalized the acuity is usually maintained or bettered, but in a few cases nerve atrophy progresses notwithstanding; on the other hand acuity may be preserved though tension remains a little too high or too low; examples are given. Again, when tension is normalized the field usually retains its previous dimensions or enlarges a little in the nasal area, but it sometimes fails further in this region.

As regards tension accurate reports of results are more numerous, but many cover too short an interval. The figures here cited are not easy to mass for comparison. The conclusion drawn is that sclero-corneal trephining, though it frequently normalizes the tension, does so less frequently and less satisfactorily than sclerecto-iridectomy.

Summarizing the differences, Lagrange emphasizes not only the higher percentage of success gained by his operation, but its freedom from the disasters of infection, irido-cyclitis, sympathetic ophthalmia, etc., and begs the reader to study the individual reports cited in his article. His final pronouncement is that sclerecto-iridectomy is the right operation for chronic glaucoma, *not* for acute glaucoma.

PRIESTLEY SMITH.

II.—A THEORY OF VISION

Schanz, Fritz (Dresden).—A new theory of vision. *Zeitschrift f. Physik.*, Vol. XII.

The new theory advocated by **Schanz** deserves more attention than it seems to have received in British Ophthalmology, and a short note on it may be interesting to the readers of the *British Journal of Ophthalmology*. As neither the Young-Helmholtz theory of three primary colours with distinct nerve-fibre connections in the retina, nor Hering's of three visual substances with their dissimilation and assimilation has succeeded in establishing itself, we may profitably turn to consideration of a third theory which is based upon purely physical phenomena observed when light acts upon matter everywhere.

Light acts upon matter when it is absorbed by the matter, and the illuminated matter becomes electrified, as is shown at once by the common gold leaf electroscope.

It is only the light of the shorter wave lengths that produces this effect. The waves must actually penetrate into the interior of the molecules, and expel electrons therefrom, which effect the electroscope, and can be collected by wire screens in laboratories. In many cases it is difficult to demonstrate these occurrences, as other chemical changes—often accompanied by oxidation—confuse or obscure the observations. All light rays do not produce the expulsion of electrons, but only the rays of shorter wave lengths, and the velocity of the electrons depends upon the wave length of the light employed. The shorter the wave length the greater the velocity.

Schanz has found that lens albumen, egg albumen, and serum albumen are all chemically altered by the light of shorter wave lengths, and incidentally attributes senile changes in the lens (including cataract) to the action of the ultra-violet rays which never reach the retina in nature as they are absorbed by the lens, and produce in it the phenomena of fluorescence. If the above statements as to the elementary action of light on matter are correct, similar occurrences must accompany every act of vision. Light can only act when it

is absorbed. It cannot be absorbed by the rods and cones, but it can be, and undoubtedly is, absorbed by the pigment in the retinal epithelium, whence electrons are hurled out and dashed against the rods and cones, which act as the wire-screen used in physical laboratories to collect the electrons, and transmit the electric current through the nerves up to the cerebral centres.

This current is identical with the electric current observed when testing the photo-electric current collected by the wire-screen. Brossa and Kohlrausch have demonstrated that the action current in the optic nerve induced by monochromatic light is characteristic for the different wave lengths of the light employed, and the initial energy is greater the shorter the wave lengths.

Schanz dealt with one objection to the new theory, viz.: "How can albinos see?" in a communication to the joint meeting of the Viennese and German Ophthalmological Societies in August, 1921. In it he stated that after an exhaustive search in the literature he had found no single case reported of an albino's eye without pigment in the retinal epithelium. Schanz brings forward the symptoms in detachment of the retina in support of this theory, but the most brilliant and impressive argument in its favour is the explanation it gives of a difficulty that no other theory has been able to solve, viz., the fact that no eye can detect the difference between a pure spectral colour and one made by a mixture of two or more spectral colours. In this respect our eyes are infinitely inferior to our ears, which can detect each different tone in a chord made up of many different tones.

A little consideration will show how the new theory solves this difficulty. The velocity of the dispelled electrons depends upon the wave lengths of the light—the shorter the wave lengths the greater the velocity, and it can well happen that when light of two different regions of the spectrum is employed, the respective velocities of the electrons may be such that they become equalized in a brief time—the more rapid pushing on the slower, and the latter reducing the speed of the former, with the result that the average velocity with which they reach the nerve centres is that of electrons due to spectral rays about half-way between the two spectral regions selected.

If, for example, rays are taken from the two regions λ 400 $\mu\mu$ and λ 500 $\mu\mu$ the average velocity acquired may be that of electrons expelled from rays of λ 450 $\mu\mu$, and the colour sensation must then be precisely what is produced by the rays from that spectral region. This is a simple physical explanation for a difficulty which has never yet been solved.

We see white when electrons of all possible velocities act simultaneously on our visual nerves. We also see white if only two groups of electrons are acting if their respective velocities are such

that that they cannot be equalized as they could be in the above example. When this equalization is impossible we see white and no colours as we do when fusing complementary colours. In the spectrum there are no complementary colours for the rays between λ 500 μμ and λ 560 μμ.

The explanation of this is that electrons of the requisite velocity can only be obtained from ultra-violet rays, and as such rays never reach the retina, being absorbed by the crystalline lens, where they produce the phenomena of fluorescence, they can only be studied in aphakic eyes. This Schanz has done in eyes after cataract extraction, and has found complementary colours in the ultra-violet region for the colours between λ 500 μμ and λ 560 μμ.

J. B. STORY.

III.—OPTIC NERVE AND ACCESSORY SINUSES

van der Hoeve, J. (Leyden).—Optic nerve and accessory sinuses. *Arch. of Ophth.*, Vol. LI, No. 3, 1922.

van der Hoeve considers the relationship of the optic nerve to the accessory sinuses under four headings: the diagnosis of the optic nerve disease, of the sinus disease, the relation between these two, and, lastly, the treatment.

The optic nerve condition may present itself as choked disc, papillitis, atrophy, or, most frequently, retrobulbar neuritis. The last presents the most difficulty in diagnosis and in this respect the greatest assistance is derived from the examination of the field of vision. Characteristic signs are central scotoma and enlargement of the blind spot, which begin as relative defects, become larger and more intense and blend together, producing a large oval scotoma including and surrounding both fixation point and blind spot. Since these symptoms can be caused by retrobulbar neuritis due to other causes, such as multiple sclerosis, tuberculosis, syphilis, dental infection or rheumatism, the first conclusion is that "The ophthalmologist has in the eye no sign at all to distinguish the origin of a retrobulbar neuritis."

In connection with the second point, the diagnosis of the sinus disease, stress is laid on the value of Rhese's method of radiography of the accessory sinuses which also demonstrates the optic foramen. Even by this method sinus disease may escape detection and the second conclusion is that "The rhinologist cannot say with absolute certainty that a person has no sinus affection," that is to say, without an exploratory operation.

Under the third heading the affection of the nerve is stated to be due to: (1) Direct spread of inflammation. (2) Pressure by the

walls of a dilated sinus. (3) Damage by toxins, oedema, congestion, etc. The injury done may be reparable or irreparable, the latter being due to atrophic processes following the former.

As regards treatment the necessity for complete examination and free consultation is emphasized. The author is not very definite, but evidently inclines towards the exploration of apparently normal sinuses in cases in which no clear indications are present. Finally, he concludes with a request for statistics to solve the question "Should we operate on the nasal sinuses in optic nerve disease of unknown origin?"

H. M. TRAQUAIR.

IV.—RELATIONS BETWEEN EYE AND EAR

van der Hoeve, J. (Leyden).—Relations between eye and ear (including the vestibular organ). *Arch. of Ophth.*, Vol. LI, No. 4, 1922.

The subject is divided into four parts: (1) conditions affecting both eye and ear; (2) eye diseases with ear symptoms; (3) ear diseases with eye symptoms, and (4) the relations between the vestibular organ and the eye.

In the first group blue sclerotics, brittle bones, and otosclerosis, albinism and deafness, Recklinghausen's disease in connection with both second and eighth nerves, and tuberose sclerosis are referred to. Apparently the only eye disease which has been known to cause deafness is sympathetic ophthalmia, and it is suggested that the pigment in the labyrinth is sensitized by the affected eye in the same way as the sympathising eye. Ocular conditions dependent on ear disease include thrombosis of the cavernous sinus and paralysis of the sixth nerve, both due to otitis media. This paralysis is attributed to the local action of toxins, as in the case of retrobulbar neuritis from accessory sinus disease.

The most important ocular-auditory relationship is the ocular-vestibular. The author refers to the great scientific as well as clinical interest of this connection to which the bulk of the paper is devoted. Experiments on rabbits are discussed, dealing with the compensatory rotation of the eyes produced by the utriculus otoliths when the head is placed in different positions. In rabbits the compensatory rotation fully corrects the influence of head movement, but in man, although the least rotation of the head produces compensatory rotation of the eyes, the latter is always less than the former. In clinical practice the head must be placed straight in the ophthalmometer in order to get the correct axis of corneal astigmatism, and badly corrected astigmats may assist themselves by holding the head on one side. In man, however, the

author regards the compensatory corneal rotation as an atavism. Vestibular nystagmus is shortly referred to, and the author concludes with a reference to the difficulty of the subject, which he did not expect all of his audience, with whom the writer of this abstract sympathizes, to understand.

H. M. TRAQUAIR.

V.—INJURIES OF THE EYE FROM LIGHT

van der Hoeve, J. (Leyden).—Injuries of the eye from light. (Schädigungen des Auges durch Licht). *Klin. Monatsbl. f. Augenheilk.*, 1922, Bd. 68, S.492.

This paper consists of some comments on the views recently expressed by Prof. R. Greeff (*Zentralbl. f.d. Ges. Ophth.*, Bd. VI., Heft. ii.), in connection with light injuries of the eyes. **van der Hoeve** considers that Greeff has underestimated the effects of light and points out that the average age of cataract patients is some ten years lower in India than in Europe, a feature which he attributes to the action of the ultra-violet rays. The injury to the lens is not direct but due to nutritional disturbance following damage to the ciliary body by rays dispersed by the lens. The relationship of macular degeneration to light and to the presence or absence of the lens is discussed and the author concludes that though it may not be the only cause, ultra-violet light can cause macular disease, especially if the lens is absent.

H. M. TRAQUAIR.

VI.—OCULAR SPOROTRICHOSIS

(1) **Sobhy Bey, M. — A case of palpebral sporotrichosis (lymphangetic form).** *Bull. Ophth. Soc. of Egypt*, p. 75, 1922.

(1) A man of 30 years consulted **M. Sobhy Bey** on account of a shallow ulcer in the skin over the lower canaliculus of one eye 3 mm. by 8 mm. in area with a brawny swelling around. In the skin of the lower lid lay a nodule as large as a pea, and there was a second nodule in the upper lid. The conditions had been present for six weeks. The patient also had a sore upon the genitals, and the Wassermann reaction was positive. The glands were enlarged practically all over the body. Smears were taken from ulcers on the lids, and cultures were made on serum agar, blood agar, and simple agar. In one of the smears, stained with

methylene blue, a long branching mycelium with two conidia attached to it was found. A young mycelium was grown in a blood agar tube. A smear did show a branching mycelium of voluminous size, and the threads which composed it were ribbon-like, but their branching was at an obtuse angle, and in general they did not look at all like the threads of sporothrix. All attempts to make sub-cultures were negative. Injections of a thin emulsion of the fungus were made under the skin of the ear of a young rabbit, but no lesions resulted. Under treatment by massive doses of potassium iodide the lesions of the lids healed in about six weeks.

S. S.

(2) **Gifford, S. R. (Omaha).—Ocular Sporotrichosis.** *Arch. of Ophthal.*, November, 1922.

(2) Rare cases of sporotrichosis involving the eye or its appendages have been reported in the main from France or America. In the latter country sporotrichosis is peculiarly a disease of the Mississippi basin. So far as the writer knows, not a single instance is to be found in the British literature. Practically all cases examined bacteriologically have been found to be associated with the *Sporothrix Schenkii.* The apparent infrequency of the disease is all the more remarkable since the causative organism is stated to have been obtained from several common plants (Toulant). It may affect all parts of the eye under quite different appearances. The affection may be primary or secondary to generalized sporotrichosis. The lesions cause serious destruction of tissue, and may even lead to death. The disease usually takes the form of ulcers of the eyelids or conjunctival sporotrichosis. Diagnosis can be made only by positive culture. Intraocular forms are usually diagnosed by finding lesions elsewhere than in the eye which will yield clinical or cultural evidence. Massive doses of potassium iodide are specific as regards treatment of the disease.

Gifford's first case was in a lad of 8 years, the son of a farmer. The condition had been present for three months before it was diagnosed. A fistula was present just below the left lacrymal sac from which a good deal of pus could be squeezed out. Exploration under a general anaesthetic showed that the opening was 2/5 inch in diameter and extended back 1½ inches into the left anterior ethmoid cells, which were full of pus. The lacrymal sac was continuous with this opening and over the inner wall the bone was left bare. After removal of the left middle turbinate bone the ethmoid cells were exenterated intranasally, and the passage was enlarged so that a tube could be placed through it into the nose, thus making a modified West operation. The patient was placed under potassium iodide and two months later there was less swelling

of the parts but still some discharge. The iodide was then stopped on account of gastro-intestinal disturbances. Three months later the opening was present in the skin, but only a few drops of pus could be squeezed out of it. The fistula was cauterized with trichloracetic acid, and tincture of iodine was applied to the deepest parts several times. In spite of this and general treatment with potassium iodide, the sac has continued to fill up with pus and a fairly deep opening in the bone is still present, although the opening into the nose has closed up. After the connection between the conjunctival sac and fistula had been destroyed by cauterization so that the tears could no longer get into the bottom of the fistulous opening, it began to heal better and at the moment of writing seems to be healing from the bottom, although slowly. Smears of the pus at the first examination showed no organisms. Cultures made on plain agar at room temperature after five days contained six discreet white colonies with fine lines radiating from them. Smears from the colonies showed the separate threads with lateral and terminal spores, characteristic of *Sporothrix Schenkii*. A white rat inoculated with the pure culture died in seven days and the organism was recovered from the peritoneal cavity. A rabbit inoculated in the anterior chamber developed nodules in the iris and cornea with a severe reaction, which subsided after three or four weeks.

The other two cases mentioned by Gifford were probably of sporotrichotic origin although cultures were negative. In one case there was an ulcer involving a portion of the upper lid and in the other case a nodule of the conjunctiva at the outer limbus. It is significant that the lesions healed under treatment by potassium iodide.

S.S.

BOOK NOTICES

Diseases of the Eye. By Sir JOHN HERBERT PARSONS, C.B.E., D.Sc., F.R.C.S., F.R.S. J. & A. Churchill, 1923. Fourth edition. 21 plates and 326 figures, 660 pp. Price 19s. net.

We welcome a new edition of this excellent work which is deservedly popular. The text has been fully revised, and although previously richly illustrated, further coloured plates and diagrams have been added.

This textbook has many outstanding qualities; chief amongst these is the correlation of ophthalmology with allied sciences, notably those of physiology and neurology, which the author's wide scientific knowledge has enabled him to carry out with great success.

Another feature very important to the student is the correlation of the "pathological" with the "clinical." Here again the author is able to give the pathological background of the clinical picture. Many textbooks, as replete with information as this one, are a mere compilation and correspondingly dull and flat, but Parsons, by the grouping of salient facts, has produced a most readable book, full of perspective and, moreover, has given a definite line to follow in the treatment of cases.

A new section has been added on preventive ophthalmology, a branch of Medical Science which deserves greater attention than it has hitherto secured. It comprises two chapters, one on "The Prevention and Causes of Blindness," and the other on "The Hygiene of Vision"—both of which are very instructive, and, in our judgment, could be improved by considerable expansion.

With a work of such high standard one hesitates to criticize, but the author flatters his readers by taking for granted that they have the same erudition as himself. It is not only students, but also some of those who have studied the subject for years, who are at times left in the dark as, for example, by certain of his more compressed passages on optics. If these were amplified, this very valuable book would be given still greater popularity, even if it meant further recourse to paragraphs in small print.

Traité Complet de Thérapeutique Oculaire. By A. DARIER. 727 pp. Paris: Jouve & Cie. 1923. Second edition.

The first edition of this book was published in 1921, and fully reviewed in this journal (Vol. VI, p. 45, 1922).

A second edition has now been found necessary owing to the rapidity with which the first has been exhausted.

There has been no change in the text, for "nothing new in ocular therapy has been produced in the past two years." In the preface to this edition, Darier again emphasizes the importance of stimulating the natural defences of the organism, and speaks enthusiastically about injections of milk and auto-haemotherapy, paraspecific therapy and the use of polyvalent vaccines.

He also refers to phacoanaphylaxis and questions the advisability of preparing the patient, before such operations as needling for soft cataract or high myopia, by subcutaneous injections of lens proteins, or of serum of animals immunized against these substances.

The book itself is a veritable mine of information on every form of treatment and one that is likely to be of value to ophthalmologists.

P. H. ADAMS.

Communicaciones del Hospital Oftalmologico, San Juan, Buenos Ayres. Vols. IV and V. December, 1922. Sociedad de Beneficencia de la Capital.

This fasciculus of 165 pages contains eight original papers, an analysis of reviews, etc., and is a record of work done in the last two years; the original papers constitute the bulk of the book. Viton writes on tuberculin in diagnosis; Balina records the results of a conference of three sittings, on the modern treatment of syphilis; Oyenard has a paper on Abadie's method in the treatment of bad cases of granular lids; Siriano contributes a case of opaque nerve fibres at the macula with an illustration; Layera gives his thesis on the orbital complications of sinusitis posterior, with numerous woodcuts and a good bibliography; Nocito writes on hyperkeratosis of the tarsus and gives illustrations of a case; Adrogue has two papers, one on juvenile arcus and the other on two cases of persistent pupillary membrane.

These reports are well done and the fasciculus is as good as the volumes for two previous years which have reached us; if, as we suppose, these reports have taken the place of the *Bulletin* of the Ophthalmological Society of Buenos Ayres, of which publication Vol. IV was the last which reached us, the standard set by that publication is fully maintained.

CORRESPONDENCE

OPHTHALMOMYIASIS

To the Editor of THE BRITISH JOURNAL OF OPHTHALMOLOGY

SIR,—In reference to my last case of ophthalmomyiasis, mentioned on page 179 of the April, 1923, number of the journal, the larvae have now been identified by Major W. S. Patton as those of *oestrus ovis*.

Yours faithfully,

JERUSALEM. A. TICHO.

NOTES

Deaths

WE regret to announce the death of THOMAS OSCAR EDGAR, of Dixon, Illinois, at the age of 51 years, of broncho-pneumonia. He was a member of the American Academy of Ophthalmology and Oto-Laryngology and of the Chicago Ophthalmological Society.

The death has recently taken place of FRITZ SCHANZ, of Dresden, an abstract of whose latest contribution appears on p. 246 of the present issue.

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Bowman Lecture

AT the recent Annual Congress of the Ophthalmological Society of the United Kingdom (April 26 to April 28 inclusive), the Bowman Lecture, was delivered by Prof. GEORGE E. DE SCHWEINITZ, President of the American Medical Association, who chose as his subject, "Certain ocular aspects of pituitary body disorders, mainly exclusive of the usual central and peripheral hemiopic field defects."

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Transactions of Ophthalmological Society U.K.

IT has been decided to dispose of the undermentioned early volumes of the *Transactions* to Members at the following much reduced rates:—Vols. I to IX inclusive, 5s. 6d. each, carriage paid; Vols. X to XVI inclusive, 10s. 6d. each, carriage paid. The price of other back volumes will remain at 30s. each as heretofore. Members wishing to procure any of the volumes at the reduced rate are requested to send an application with remittance to one of the Secretaries.

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Appointments

MR. HUMPHREY NEAME has been appointed junior ophthalmic surgeon to University College Hospital.

Mr. F. A. WILLIAMSON-NOBLE has been appointed assistant surgeon to the Central London Ophthalmic Hospital.

Mr. FRANK MOXON has been appointed consulting ophthalmic surgeon to the Wimbledon Hospital.

MR. GEOFFREY B. LOWE has been appointed surgeon on the staff of the Royal Eastbourne Eye Hospital.

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Gifford Edmonds Prize

THE Gifford Edmonds' prize is awarded every two years for the best essay on a subject dealing with ophthalmology. The subject selected for the next one is "Irido-cyclitis," and preference will be given to the paper which shows evidence of original observation. Essays must be sent in by December 31, 1924. Further particulars can be obtained on application to the Secretary, Royal London Ophthalmic Hospital, City Road, E.C.1.

Transactions of an International Congress of Ophthalmology 1922

THE Publication Committee has on hand a limited number of *Transactions* of the International Congress of Ophthalmology, 1922. Copies may be obtained by forwarding an international money order, equivalent to ten dollars ($10.00) in United States money, to Dr. William Zentmayer, Chairman of the Committee, 1506, Spruce Street, or to Dr. Luther C. Peter, Secretary, 1529, Spruce Street, Philadelphia, Penn.

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Centenary

THE centenary of the Vienna Ophthalmologist, Prof. KARL STELLWAG VON CARION will shortly be celebrated. He was born early in 1823, and his name is mostly known by his sign in exophthalmic goitre.

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Leicester Royal Infirmary

MR. N. C. RIDLEY has resigned his post of ophthalmic surgeon to the Leicester Royal Infirmary after serving for 27 years upon the staff.

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British Journal of Ophthalmology Annual General Meeting

THE Annual General Meeting of the shareholders of the journal was held on Friday, March 23, at the Royal Society of Medicine (by the kind permission of the Council of the Society).

The audited accounts and balance-sheet for the year ended December 31, 1922, were presented and adopted. The Report of the Directors, which was presented and accepted, showed that the past year had been financially successful, and the Directors were again able to declare a dividend. The circulation of the journal had been well maintained.

The Directors expressed their appreciation of the labours of the Editorial Committee, the Editor and Sub-Editor, the Manager and the printers.

Two members of the Board retired in rotation (Messrs. Maitland Ramsay and J. Gray Clegg), and Messrs. Ernest Clarke and Cyril Walker were elected to fill the vacancies. The Auditors, Messrs. Singleton, Fabian and Co., were re-elected.